## REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of August 24, 2006. Claims 1-45 are pending in the present Application.

In the above-identified Office Action, the Examiner objected to the specification as not providing proper antecedent basis for the term "generic subclass" in claims 14 and 42 of the present application.

Applicant respectfully traverses the Examiner's rejection. Claims 14 and 42 do recite a "generic subclass." In particular, claims 14 and 42 recite identifying a first query element for a first query language dialect and identifying at least a second query element type for at least a second query language dialect. The second query element type is functionally equivalent to the first query element type. Claims 14 and 42 further recite that a "generic subclass representative of both the identified first and at least second element type" are created. Thus, the generic subclass is representative of different query element types in different dialects that are equivalent.

Applicant agrees that the specific term "generic subclass" is not actually present in the specification. However, MPEP 608.01(o) does not require that the exact terminology be present in the specification. Instead, MPEP 608.01(o) only requires that the meaning of each tem be apparent from the descriptive portion of the specification. In addition, although MPEP 608.01(o) indicates that new claims and amendments should be scrutinized for new terminology, claims 14 and 42 contained the terms "generic subclass" as filed.

Furthermore, the specification provides adequate support for the use of the term "generic subclass" that is "representative of both the identified first and at least second element type." In particular, the Specification does describe modeling of query elements such that multiple dialects are represented in a single model. See, specification, paragraphs 8, 110, 129, 131, 133, and 135

and FIGS. 7-10. Consequently, a single subclass can represent equivalent query elements in different dialects. In this sense, the subclass created may be considered to be generic. Moreover, the term "generic" as used in this context matches the ordinary definition of the term. For example, reference can be made to online dictionaries. For example, the term "generic" is described in the American Heritage online dictionary as "relating to or descriptive of an entire group or class; general". See http://www.bartleby.com/cgi-bin/texis/webinator/ahdsearch?search_type=enty&query=generic&db=ahd&Submit=Search. Similarly, the Meriam Webster online dictionary describes generic as: "relating to or characteristic of a whole group or class". See http://m-w.com/dictionary/generic. Consequently, the term generic subclass merely indicates that the subclass is general in nature. Claims 14 and 42 further recite the manner in which the subclass is general, i.e. that the subclass represents equivalent query elements of different dialects. As discussed above, this type of generality is described in the specification and is consistent with the ordinary definition of "generic". Consequently, Applicant respectfully submits that the specification provides adequate support for the term "generic subclass." Accordingly, Applicant respectfully submits that the specification does provide proper antecedent basis for the claimed subject matter and does comply with 37 CFR 1.75(d)(1) and MPEP 608.01(d).

In the above-identified Office Action, the Examiner rejected claims 1-3, 5-10, 14-17, 19-24, 28-31, 33-38, and 42 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,775,662 (Witkowski). In so doing, the Examiner relied upon item FIG. 5, item 511of Witkowski as teaching the superclass, FIG. 5, item 521 as teaching a first subclass representing the atomic query element, FIG. 5, item 513 as teaching the combined query element, FIG. 5, item 524 as teaching a left subelement, and, apparently, FIG. 5, item 514 as teaching the right

subelement. Further, with respect to claims 14, 28, and 42, the Examiner indicated that the query dialect corresponded to the syntax of a particular query expression described in Witkowski (See footnotes 8, 9, 19, and 20 of the above-identified Office Action).

Applicant respectfully traverses the Examiner's rejection. Claim 1 recites:

> 1. A structure for representing a query statement having an atomic query element and a combined query element related by a combined operator, the structure being stored on a computer-readable medium, the structure comprising:
> a superclass representing the query statement and including an operation on a combination of the combined operator, the query element, and the combined query element, the superclass further comprising:
> a first subclass representing the atomic query element;
> a second subclass representing the combined query element and including a left subelement and a right subelement, wherein each of the left and right subelements can be any subclass of the superclass; and
> a relationship indicator representing a relationship between the first subclass and the second subclass as defined by the combined operator.

Independent claim 15 recites:

> 15. A method for hierarchically representing a query statement having an atomic query element and a combined query element related by a combined operator comprising the steps of:
> defining a superclass representing the query element, representing the query statement and including an operation on a combination of the combined operator, the query element, and the combined query element;
> defining a first subclass of the superclass representing the atomic query element;
> defining a second subclass of the superclass representing the combined query element and including a left subelement and a right subelement, wherein each of the left and right subelements comprises any class of the superclass;
> indicating a relationship between the first subclass and the second subclass defined by the combined operator; and
> storing the superclass, the first subclass, the second subclass on a computer-readable medium.

Independent claim 29 recites:

> 29. (Previously Presented) An article of manufacture comprising a computer program carrier readable by a computer and embodying one or more

instructions executable by the computer for providing a structure for representing a query statement having an atomic query element and a combined query element related by a combined operator, the computer program comprising:

program instructions defining a superclass representing an operation on a combination of the combined operator, the query element, and the combined query element, the superclass further comprising:

program instructions for defining a first subclass representing the atomic query element;

program instructions for defining a second subclass representing the combined query element and including a left subelement and a right subelement, wherein each of the left and right subelements can be any subclass of the superclass;

program instructions for defining a relationship indicator representing a relationship between the first subclass and the second subclass as defined by the combined operator; and

program instructions for storing the superclass, the first subclass, the second subclass on a computer-readable medium.

Using the structure, method, and article of manufacture recited in claims 1, 15, and 29, a query statement may be represented in a manner that accounts for the syntax of the query language and is more detailed. Specification, page 22, lines 14-18. Moreover, multiple dialects can be accounted for. Specification, page 22, lines 16-17.

The recited superclass, first subclass, second subclass, and relationship indicator can be understood using specific examples in the specification. Embodiments of such superclasses, subclasses, and relationship indicators are depicted in FIGS. 6A and 6B (among others) in the present application. For example, FIG. 6A is a representation of the query WHERE AQE CO CQE, in which AQE is the atomic query element DEPARTMENT.DEPTNO IN ('D01', 'D11', D'21'), CO is the combined operator AND, and CQE is the statement (EMPLOYEE.SALARY > 5000 OR EMPLOYEE.JOB = 'MANAGER'). Specification, paragraphs 119-125, 127. The specification expressly states that "[t]he statement "WHERE DEPARTMENT.DEPTNO IN (`D01`, `D11`, `D21`) AND (EMPLOYEE.SALARY>500000- R

EMPLOYEE.JOB=`MANAGER`," is the query element to be modeled and will be represented by an instance of parent node 51." Specification, paragraph 120. Thus, the superclass corresponds to node 51 and represents the **entire** statement WHERE AQE CO CQE. Thus, the superclass encompasses more than simply an operator between clauses in the statement. Instead, the superclass represents the query statement including the clauses and operators therein. The subclasses are individual nodes 52 and 53 that represent atomic and combined query elements. Similarly, FIG. 6B is a representation of the query WHERE $AQE_1$ $CO_1$ ($AQE_2$ $CO_2$ $AQE_3$). Specification, paragraph 126.

Witkowski fails to teach or suggest the combination of the superclass, subclasses, and relationship indicator. Witkowski describes a method for more efficiently rewriting a query statement. Witkowski, Abstract. In order to do so, Witkowski discloses generating a predicate tree for filter criteria used to filter a particular query. Witkowski, col. 10, lines 57-67. An example of such a predicate tree is depicted in FIG. 5 of Witkowski, which was cited by the Examiner. Witkowski states that the leaf nodes of the tree are predicates, while the parent nodes correspond to "conjunctive and disjunctive operators of conjunctive and disjunctive expressions" in the filtering criteria. Witkowski, col. 10, lines 63-66. Col. 10, line 33-35 of Witkowski depict the WHERE statement from which the tree in FIG. 5 of Witkowski is obtained. Thus, the node 511 of Witkowski corresponds to a *single operator*, as do the remaining nodes of Witkowski. The entire tree of Witkowski corresponds to the predicates of a query. Consequently, what is shown in the cited figure of Witkowski is a classic query tree in which each node represents a predicate (such as the leaves 522 and 523) or an operator (such as the nodes 511, 512, and 513). None of the nodes represent a superclass corresponding to the recited superclass.

In contrast to the structure, method, and article of manufacture recited in claims 1, 15, and 29, Witkowski fails to teach or suggest the combination of the recited superclass and subclasses connected by a relationship indicator. As described above, Witkowski indicates that the parent nodes correspond to operators, rather than to the recited superclass. Consequently, there is no superclass under which the subclasses would be organized in the cited portions of Witkowski. Instead, the tree shown in FIG. 5 of Witkowski has a root node 511 that merely corresponds to an operator. Consequently, the root node 511 of Witkowski is more analogous to the recited subclasses or relationship indicator than the recited superclass. Further, Applicant can find no indication in Witkowski that a node in the tree of FIG. 5 of Witkowski can or should correspond to another query element. More specifically, Applicant can find no indication in Witkowski that the recited superclass can or should be provided as a root node of the tree depicted in FIG. 5 of Witkowski. Consequently, Witkowski fails to teach or suggest the structure, method, or article of manufacture recited in claims 1, 15, and 29, respectively. Accordingly, Applicant respectfully submits that claims 1, 15, and 29 are allowable over the cited references.

Claims 2-3, 5-10, and 14 depend upon independent claims 1. Claims 16-17, 19-24, and 28 depend upon independent claim 15. Claims 30-31, 33-38, and 42 depend upon independent claim 29. Consequently, the arguments herein apply with full force to claims 2-3, 5-10, 14, 16-17, 19-24, 28, 30-31, 33-38, and 42. Accordingly, Applicant respectfully submits that claims 2-3, 5-10, 14, 16-17, 19-24, 28, 30-31, 33-38, and 42 are allowable over the cited references.

Furthermore, Applicant respectfully submits that claims 14, 28, and 42 are separately allowable over the cited references. Claims 14, 28, and 42 all recite identifying a first query element type in a first query language dialect, identifying at least a second query element type that is in a second query language dialect and functionally equivalent to the first query language

dialect. Claims 14, 28, and 42 also recite creating a generic subclass representative of both the identified first and at least second element type. Thus, claims 14, 28, and 42 all recite the creation of a generic subclass for functionally equivalent query elements in multiple query language dialects.

Applicant respectfully traverses the Examiner's rejection. As described in the specification, a number of dialects for a given query language, such as SQL, may be used. Specification, page 22, line 16. Examples of such dialects for SQL may include but are not limited to Oracle 9i (see, for example the discussion at the site <http://www-db.stanford.edu/~ullman/fcdb/oracle/or-nonstandard.html>, SQL Server, and MySQL (see, for example, <http://www.mssqlcity.com/Articles/Compare/sql_server_vs_mysql.htm>). Thus, one of ordinary skill in the art will readily recognize that query language dialects, such as SQL dialects, are not merely slightly different syntax in two different expressions. Applicant has found no mention in Witkowski of the use of different dialects. Instead, Witkowski merely describes different expressions, rather than different dialects. Consequently, Witkowski does not teach or suggest identifying functionally equivalent query elements in at least two different dialects and representing they both using a generic subclass. Claims 14, 28, and 42 are, therefore, separately allowable over the cited references.

The Examiner also rejected claims 4, 11-13, 18, 25-27, 32, and 39-41 under 35 U.S.C. § 103 as being unpatentable over Witkowski in view of Li. In so doing, the Examiner relied upon Li as teaching subclasses that represent tables.

Claims 4 and 11-13 depend upon independent claim 1. Claims 18 and 25-27 depend upon independent claim 15. Claims 32 and 39-41 depend upon independent claim 29. Consequently, the arguments herein with respect to Witkowski and the independent claims apply

with full force to claims 4, 11-13, 18, 25-27, 32, and 39-41. In particular, Witkowski fails to teach or suggest the recited combination of the superclass, subclasses, and relationship identifier.

Li describes a mechanism for translation between a text format and visual format relational database queries. Li, Abstract. In order to perform this translation, Li describes providing a common data structure, multiple related lists, for text based and graphic based languages. Li, col. 5, lines 14-25. The cited portion of Li, however, describes eight basic data structures that are represented in the cited figure of Li as blocks. Li, col. 5, lines 37-46 and Fig. 3. Furthermore, Li describes specific data structures as lists. See, for example, Li, col. 6, lines 1-16. Applicant also agrees that at least some of the specific data structure describe tables. Moreover, Li also describes interfaces and providing a selection of choices from a menu. Although Li functions well for its intended purpose, the cited portion of Li does not describe a superclass, subclasses related to the superclass, or the recited relationship identifier.

Both Li and Witkowski fail to teach or suggest the recited combination of the superclass, subclasses and relationship identifier. Consequently, any combination of Li and Witkowski would also fail to teach or suggest this feature. Stated differently, if the teachings of Li were added to those of Witkowski, the combination might utilize the data structure of Li in representing a query, as well as the tree of Witkowski in filtering the query. The combination might also use the interface(s) and query expressions in Li. However, the combination would still not utilize the combination of the superclass, subclasses, and relationship identifier. Thus, Witkowski in view of Li fails to teach or suggest the present invention as recited in varying scope in claims 4, 11-13, 18, 25-27, 32, and 39-41. Accordingly, Applicant respectfully submits that claims 4, 11-13, 18, 25-27, 32, and 39-41 are allowable over the cited references.

The Examiner also rejected claims 14, 28, and 42 under 35 U.S.C. § 103 as being unpatentable over Witkowski in view of U.S. Patent No. 6,826,557 B1 (Carter),

Applicant respectfully traverses the Examiner's rejection. Claims 14, 28, and 42 depend upon independent claims 1, 15, and 29, respectively. Consequently, the arguments herein apply with full force to claims 14, 28, and 42. In particular, Witkowski fails to teach or suggest the recited combination of the superclass, subclasses, and relationship identifier.

Carter does describe a system that characterizes query results and retrieves the query results based on the characterization. Carter, Abstract. In addition, Carter does describe the use of a dictionary to account for differences in dialects. Carter, col. 4, lines 14-47. Carter utilizes the dictionary for normalizing data items labels into a common schema. Carter, col. 4, lines 26-28.

Carter fails to remedy the defects of Witkowski. Applicant has found no mention in Carter of the recited superclass, subclasses, and relationship identifier. Consequently, any combination of Witkowski and Carter would also fail to teach or suggest this feature. Witkowski in view of Carter, therefore, would fail to teach or suggest the structure, method, and article of manufacture recited in claims 14, 28, and 42, respectively.

Claims 14, 28, and 42 describe subclass representatives of equivalent query types form different dialects. Witkowski in view of Carter fails to teach this feature. If Carter were added to the teachings of Witkowski, the combination might use the dictionary of Carter in order to account for differences in dialects, particularly for normalizing the labels of data items. However, there is no indication in either Carter or Witkowski that the dictionary can or should be used in forming the predicate tree depicted in FIG. 5 of Witkowski. Consequently, Witkowski in view of Carter fail to teach or suggest the use of subclass representative of equivalent query types

form different dialects. Accordingly, Witkowski in view of Carter fail to teach or suggest the structure, method, and article of manufacture recited in claims 14, 28, and 42, respectively.

New claims 43-45 depend upon independent claims 1, 15, and 29, respectively. In addition, new claims 43-45 recite that at least one of the first subclass and the second subclass generically represent at least one query element in a plurality of query language dialects. Consequently, for the reasons discussed above with respect to claims 1, 15, 19 and claims 14, 28, and 42, claims 43-45 are allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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